

## ALTERNATING CURRENT AXIALLY OSCILLATING MOTOR

### Abstract of th Disclosur

An alternating current motor may include a rotor configured to rotate about a longitudinal axis, the rotor comprising a diametrically magnetized permanent magnet. Furthermore, the alternating current motor may include stationary coils having a magnetic axis substantially perpendicular to the rotor's longitudinal axis, the stationary coils adapted to the rotor's outer periphery and being substantially coaxial with the rotor's longitudinal axis. In addition, the alternating current motor may include a stator adapted to the stationary coils' outer periphery and being substantially coaxial with the rotor's longitudinal axis, wherein the diametrically magnetized permanent magnet is configured to cause the rotor's oscillation angle to vary no more than 30% between the rotor's oscillation angle at a beginning value of a frequency range of an alternating current in the stationary coil and the rotor's oscillation angle at an ending value of the frequency range of the alternating current in the stationary coil.

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